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## "CORRECTIVE THERAPY: ITS ACHIEVEMENTS AND FUTURE"

DONALD A. COVALT, M. D.

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Corrective Therapy is a relatively new term in Physical Medicine Rehabilitation, but its significance is old and its basis solid. Physical activity has been intimately associated with the practice of medicine almost since the very beginning of the healing art. During World War II the critical lack of manpower demanded that active reconditioning programs be put into operation and that they ACCOMPLISH RESULTS. This was done to so remarkable a degree that Corrective Therapy was made an integral part of the Physical Medicine Rehabilitation Service in the Veterans Administration. The progress made to date in this specialty in counteracting deconditioning phenomena tending to occur in hospitalized veterans of almost every classification has been most remarkable. You are all familiar with the monumental accomplishment at the Minneapolis VA Hospital in the successful reablement scores of chronic neurological veterans hospitalized for many years. The Corrective Therapist was one of the key personnel responsible for the excellent results obtained, results so phenomenal that one must pause to ponder the reason for the lack of medical and physical interest in these patients in the past, or at least the lack of "the doing process" for their recovery.

The physiatrist always has in mind the restoration of his patient to complete function as well as to a state of full health. Although rehabilitation is primarily a medical problem, the physiatrist alone cannot begin to accomplish this objective. It is a job for team work—demanding that each component unit of Physical Medicine Rehabilitation contribute its part and directing the whole unified effort toward the maximum reablement of the veteran, consistent with his abilities and disabilities. It should be emphasized that the Corrective Therapist has invariably been a loyal and efficient member of this team, cooperating with the doctor and treating the patient on a personalized, individual basis.

As a team we are basically concerned with the paraplegic, the amputee, the neurological patient, the cardiac, . . . ad infinitum. We must not pause until through research and experience we may determine the extent that every sick and disabled veteran may be helped back to independence and self-respect. In short, it is our obligation to follow each veteran from the bed to the job and to accomplish the ultimate objective in the shortest possible time consistent with good medical practice. Many series of reports come to Central Office setting forth data concerning progress in Physical Medicine Rehabilitation Service. It is commonplace to note commendation paid to the Corrective Therapist for his part in that progress of the patient's recovery.

Perhaps the most fascinating phase of this work is the unlimited possibility for future expansion of Corrective Therapy as applied to recovery from disease. It is only recently that Keys determined quantitatively many of the undesirable and harmful effects of bed rest. Prominent leaders in every medical specialty have expounded the advantages inherent in shorter bed confinement and earlier ambulation. Present thinking points the way toward the necessity for a broad research program in this whole field for obtaining quantitative data regarding deconditioning-reconditioning phenomena. It is encouraging to note that many Corrective Therapists have taken the initiative in establishing a research program. Some are limited and some pretentious in scope. This matters not, for each has his contribution to make and it will all be necessary for further development along sound medical principles.

The Veterans Administration has a sacred and also a legal obligation in the restoration of our sick and disabled veterans. I know that Corrective Therapists have taken their part in this task seriously and have done their utmost to help as team members for the one purpose of enabling the veteran to return to his home, job and community an independent citizen.

I take this opportunity to thank all members of the Corrective Therapy staffs in our VA installations who by their professional skill, loyalty of purpose and untiring efforts have made possible the remarkable progress of Physical Medicine Rehabilitation in the restoration of those who suffered disease and disability while in their country's service. I shall continue to look to you for further progress in this worthy cause.

## \*"TREATMENT OF HEMIPLEGIA"

By DR. C. O. MOLANDER

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Death due to cardiovascular disease has risen to an alarming rate in the past four or six years. Hardly a day passes that we do not hear of someone passing away with a coronary thrombosis or a cerebral vascular accident. We in physical medicine are seeing a large number of cerebral accidents in the form of hemiplegia.

The question naturally arises as to just what to do for these cases. Before we do, however, it is well to consider briefly the causative factors, some important points in the pathology, and some of the important findings in these cases. We shall then consider some of the important tests and measurements and follow with the treatment of such a case from the standpoint of physical medicine.

### ETIOLOGY—

- A. Vascular lesions.
  - 1. Embolus—sudden.
  - 2. Hypertension—sudden—arteriosclerosis.
  - 3. Thrombosis—gradual, insidious.
- B. Space occupying lesions.
  - 1. Intracranial tumors.
  - 2. Chronic abscesses.
- C. Cerebral palsies of children.
  - 1. Congenital—birth—anoxias.
- D. Trauma—exact site of injury important.
  - 1. Gunshot.
  - 2. Depressed or comminuted fractures.
- E. Inflammatory lesions.

The cases we deal with are the hypertensive and arteriosclerotic types. These are very numerous and rank first as the cause of all hemiplegic states. They have assumed an increasingly prominent place in the practice of medicine, particularly in physical medicine and rehabilitation. It is with these vascular lesions that we shall deal. The symptoms from thrombosis are more gradual and insidious in their development.

### PATHOLOGY—

The area involved is the motor cortex, the whole of area 4 and the adjacent portion of 6. (This according to Walshe). He states that this is an inseparable anatomic and physiologic unit. He feels that the division with pyramidal and extra-pyramidal systems "motor and premotor areas," as advocated by Fulton and others, is not justifiable on the basis of available data. This problem bears directly on the question of spasticity and flaccidity in man, the mechanism of which still remains a moot question.

Walshe goes on to state that the involved problems of the motor cortex and the pyramidal tracts must be further complicated by the correlation of the role of the collateral systems which undoubtedly play a prominent role in human motor function and dysfunction. These include the thalamus, basal ganglions, cerebellum, premotor cortex, and their associated commissural and crossed pathways, and spinal projections.

On the basis of evidence adduced, it is probable that individual muscles are represented in the "motor cortex" and that "movements" are represented in the larger cerebral organization of the frontal lobe. It is apparent that function is not merely a matter of nerve cells or bodies or pathways, but is rather an extremely complex correlated anatomic and physiologic process set up at neural synapses. Reciprocal innervation in every movement is elicited by cortical stimulation, and in the hemiplegic person the paralysis of a muscle as such is never seen, only a paralysis of "movement."

Examination of patient from standpoint of physical medicine.

- 1. History and findings of referring doctor:
  - Blood pressure, pulse, respiration, electro-cardiogram, etc.
- 2. These cases are always spastic in character.
  - a. At first flaccid with no reflexes.
  - b. Later—reflexes.
  - c. Increased tendon reflexes.
  - d. Absent superficial reflexes.
  - e. Pathologic reflexes.
    - Babinsky.
    - Oppenheim.

#### Ankle Clonus.

Gordon—squeeze calf muscles.

Chaddock—stroke around ext. malleolus.

f. There is absence of muscle atrophy.

g. Absence of reaction of degeneration.

#### 3. Circulatory disturbances. (These may be quite marked).

At first the patient may be quite red or cyanotic, the perspiration may be profuse. The skin may become soggy and macerated, and growth changes may appear in the hair, skin, and nails. The skin temperature is inevitably lower on the affected side so that the skin may feel cadaveric to touch. Trophic changes may occur early (not common). Acute decubitus may occur where pressure is prolonged. Ulceration of the palms may occur due to severe pressure of nails caused by rigidly flexed fingers. Abortive movements may occur. These are called the athetoid phenomena and are not significant of a voluntary comeback.

#### 4. Contractures.—Muscle power—accuracy of movement.

a. Upper extremities: Shoulder, elbow, wrist and hand-flexor abductor, pronators.

b. Lower extremities: Rigidity develops in position of extension; the knee is extended rigidly; the foot assumes a position of equino varus; tightening of the heel cord.

#### 5. Posture.

Bed posture.

Standing posture—exaggeration of our normal standing posture.

#### 6. Gait. Circumduction gait.

In walking weight is carried on the sound leg and by the trunk and pelvic muscles; the paralyzed extremity is swung forward; the toe dragging in an arc-like course around the heel of the unaffected foot.

After the above symptoms and findings have been determined, two problems then face the physiatrist:

1. What is the extent of the patient's disability? How far is he along the road to recovery?

2. What can the patient do with his disability?

#### TESTS AND MEASUREMENTS—

##### 1. Motor ability test.

This has to do with a muscle or group of muscles involved in a specific movement and is graded according to a scale of 12 gradations of muscle strength. Unit values, which are referred to as "units of motor function" have been assigned to each of these gradations.

##### 2. Functional test—same as in polio.

In testing it is well to remember that if death does not occur during the first three weeks following a cerebral hemorrhage, improvement in the paralysis uniformly appears and may be progressive for many months. Most frequently the leg will show the first signs of improvement and this is followed by the face, while the arm, being the most severely involved, is the last to show a return of function. At first the reflexes are absent or greatly depressed and the muscles are correspondingly limp and flaccid. Gradually the reflexes increase and finally become exaggerated. Rigidity and stiffness appear in the paretic extremities and fore-shadow the contractures which will later develop. Such contractures are always much more severe in the upper extremity than in the lower. The flexor muscles predominate over the extensor in the arm, so that the fingers become drawn into the palm of the hand, the wrist is strongly flexed, the forearm is fixed in pronation, and the elbows are forcibly extended by the examiner and then released, they fairly snap back into their former position. If allowed to remain unchanged in these attitudes, the joints become ankylosed, muscles and tendons become rigid and contracted, and deformities result which rapidly become irreparable. Passive manipulation of such an extremity is quite painful to the patient.

After having carefully tested the patient

1. Bed—lying position.

2. Sitting—balance.

3. Standing—balance.

4. Walking—balance—accuracy.

We then should have a clear idea of the condition on admission. A treatment program can now be outlined.

The purpose of treatment and rehabilitation are

1. To prevent and correct deformities.

2. To increase muscle function, and
  3. To teach patient to perform activities essential in daily living.
- The basic requirement of such a program should be the development of confidence and self-reliance, such as the ability to walk and travel; the ability to care for personal needs; and the ability to handle activities.

#### THE TREATMENT PROGRAM: (Rest and good nursing).

(For bed)

1. Bed position—
  - a. Position of physiological rest.
  - b. Splints where necessary—prevent contractures.
  - c. Sand bags, boards for feet—blocks.
  - d. Cradle over lower extremity.
  - e. Slight flexion knee 10 degrees or less under knee.
2. Infra-red to upper and lower extremity on affected side 20-30 min. each.
3. Massage lightly; light stroke when flaccid.
4. Passive motion all planes. (Teach floor or private nurse to do this 2 or 3 times per day).
5. Stretch contractures.
6. Muscle re-education—teach coordination. Frankel's exercises.
7. Relaxation.
8. Use of occupational therapy.
9. Exercise strong side—crossed learning.
10. Electrotherapy?

When Internist permits—

1. Sitting balance.
2. Standing balance.
3. Walkers.
4. Crutches.
5. Cane.
6. Workout 3, 4 and 5.  
Posture training. Short steps to start. Use of leg brace, 90 degree stop at ankle.
  1. Correct foot drop.
  2. Provide adequate locomotion.
7. As patient gains strength
  1. The use of DeLorme exercises for power.
  2. Pulley weights.
  3. Underwater exercise.
    - a. Hubbard tank 96 deg.
    - b. Pool.
  4. Occupational therapy.
  5. Teach activities inherent in daily living—tying shoe strings; going to toilet; combing hair; etc.
  6. Emphasize home program.

In summarizing the treatment program, certain principles should be followed:

1. Watch patient's general condition from day to day.
2. Do not overdo; frequent rest periods.
3. P.T. in the morning; OT in the afternoon.

In the over-all plan of treatment, my colleagues and I have followed certain axiomatic principles:

1. Treatment should be instituted as early as possible, as soon as definitive medical treatment has ceased.
2. As early as practicable one should strive to establish a self-care for the patient. Patients soon learn that being waited on is an extremely pleasant experience. They develop a sense of well-being that makes their rehabilitation more difficult as time goes by.
3. If the quadriceps has acquired good power and there is adequate stability at the knee joint, the patient should be got up and started on a program of walking re-education.
4. If flaccidity persists, an attempt should be made to motivate him to sit up in bed and take care of as many of his own needs as possible.



5. Since function in the lower extremity returns before that in the upper extremity, one should concentrate on locomotion and traveling activities first. In this way, earlier discharge from the hospital will be possible and the program of hand activities can be instituted on an outpatient basis.

6. Better results are obtained by working with the patient than by working on him.

7. The program of therapy should be extended as far into the day as is possible within the patient's limits. One should remember the "3A Rule:" "Action absorbs anxiety."

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## "THE NEED FOR SCIENTIFIC THERAPEUTIC EXERCISE IN THE REHABILITATION PROGRAM"

By DR. GEORGE STAFFORD

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Much of the earlier writing dealing with exercise give considerable space to the benefits of physical activity in the treatment of certain bodily ailments. The writings of Ling, Spiess, Jahn and others stress the value of exercises. The so-called "posture work" which started in the Boston schools around 1890 has often been called corrective physical education. But this corrective work has been largely with individuals who did not have any pathological condition. Outside of their posture deformity they might well be called normal. Without much scientific precedent to guide the workers in this field, the work was largely empirical. Perhaps it might be sufficient to say that some good was accomplished by this work. No doubt many individuals stood straighter and walked better due to, or in spite of, this corrective work. It would be far fetched to say that there was much scientific thought given to this so-called corrective work.

During World War I some exercise work was done with therapeutic cases in the Army hospitals. Colonel McMurdo of Base Hospital No. 3 at Brownsville, Texas, used five series of exercises graduated from mild up to double time and hurdle jumping or the equivalent of full field duty. I don't know whether the Colonel would claim that these exercises were designed along scientific lines. However, the work was with individuals who definitely were different from the type dealt with in schools. In other words, they were cases with a pathological history and the work was done under the close supervision of the orthopedic surgeon or the medical doctor.

The physical therapist handled a great deal of this therapeutic exercise during World War I and between the two wars physical therapy raised its training standards so that when World War II came along they were prepared to do their part in the convalescent care of our ill and injured service men. The yearly influx of poliomyelitis cases kept them busy. Many progressive orthopedic surgeons used physical therapists to help in hastening the recovery of orthopedic cases. Some hospitals were using physical therapists. Note that these physical therapists were usually in the hospitals and working close to the doctor. Their training courses gave them a good background in anatomy, physiology, kinesiology, basic pathology, and all other phases of physical therapy, but with one exception—their training did not emphasize very strongly the exercise phase of physical medicine. Their training prepared them for administering massage, hydro-therapy and electrotherapy. Few physical medicine doctors outside of men like Drs. George Deaver, Lowman, Granger, Ewerhardt and Krusen really knew much about the exercise phase of physical medicine before World War II.

During the period from World War I to World War II the physical educator had been busy turning out athletic teams or, in a few cases, trying to keep his corrective work going in a not-too-enthusiastic university or high-school. Note the physical educator was not dealing with conditions which might be called pathological. At best he was dealing only with slight deviations from normal. Thus when World War II came along very few physical educators had been doing much exercising of individuals with pathological conditions. You all know the early confusion of the first service schools that attempted to train men for corrective physical rehabilitation to work with patients who were already in hospitals because of injury or disease. Very few people in this country were aware or gave much consideration to the exercise program which the British were using for their convalescents. Long after our schools for the training of men for the exercise program in the hospital had been started we were still working on a standard series of exercises to be used for the various types of conditions which had been in the hospitals for quite some time. Very little training was given to the AAF instructors. Fortunately many of these instructors had had previous corrective experience in colleges and universities. In the Army, officers were trained at Lexington, Virginia, and the enlisted men at Camp Grant and Fort Lewis. In many instances the officers and the enlisted men graduated with totally different ideas as to what exercises were to be given to the convalescents. The Navy trained both officers and enlisted men at the same school, rather late in the picture.

It was well toward the end of the war before we finally decided on our objectives for reconditioning, namely, that we would attempt to (1) Prevent deconditioning of the unaffected parts of the body while the affected parts were under-



going repair, (2) Prevent those parts of the body affected by disease or injury from losing their functions or to restore them to normal, (3) Restore total fitness for return to duty or for return to civilian life with as little handicap as possible, (4) Provide diversional activities for social and psychological adjustment, (5) Restore vigor to tired minds, courage and confidence to quailing spirits—to turn the patient's mind away from his invalidism and toward recovery.

Due however to the peculiar adaptability of our men, many former coaches and teachers of physical education were doing a fine job in the hospitals long before Washington gave its parental sanction to the standard operating procedure for work in the hospitals. On the other hand, some untrained men were doing poor jobs. They just didn't know the score. In many cases doctors didn't know how to tell them what to do. I recall one case with a pin through the knee and the leg in traction, where the doctor had prescribed foot flexion and extension and ankle rotation. The instruction was doing his level best to carry out the prescription, using both hands on the foot and ankle and being entirely unaware of the painful rotation he was causing in the knee area, not to mention the discomfort and fear of the patient. These men just didn't have the training.

So Dr. Hellebrandt, a fine medical doctor with excellent training and experience in physical therapy, made her first criticism of our work during the war when she said that our men didn't know scientific therapeutic exercise. And she was right! Maybe the physical therapists didn't have the answers as to how the overload principle should be used, nor did they have the know how of developing power in joints which had recovered from their injury, although they quickly learned when Dr. De Lorme brought out his material on high resistance and low repetition. But, the physical therapist did not undo the work which the orthopedic surgeon had done. In many cases they went clear to the other end and worked very efficiently as evidenced by Dr. Nila Covalt's bed exercises. The one feature about those bed exercises is that they do not aggravate the patient's condition; they do not harm the patient.

It seems that we might better stop beefing about physical therapy taking over the exercise program and ask ourselves just how good a job we are doing. The physical therapist, according to one writer, "can go one step farther and teach specific exercises to all patients to prevent deformities and to maintain muscle tone." This author also mentions the desirability of the physical therapist improving posture of the patient and teaching the patient how to relax. What are we doing along this line? The physical therapist has been keen enough to see the desirability of functional activity. Why haven't we been doing this? For some time we have been using the term psychosomatic. How much emphasis do we give to the sociologic and psychiatric side of the case. I have often wondered why the exercises which are found in the Army Bulletin 8-292 and the Navy Rehabilitation Bulletin are not used more in our therapeutic exercise program in the Veterans Administration hospitals. While we might be critical of Dr. Nila Covalt's bed exercises the physical therapists have been quick to see the desirability of a united front and a uniform series of exercises which the doctors are willing to accept. On the other hand, we have failed to get together and agree upon any uniformity in our exercises. In one hospital I see resistive exercises given by the instructor, in another hospital weights are used for resistance, and in another hospital a little medicine ball tossing and so on until I am very confused, as must be the medical doctors, as to whether our work has the value which many claim. I seriously question its being scientific.

Are we clear as to just what we mean by scientific therapeutic exercise? Dr. Krusen defines it as the scientific application of bodily movement designed specifically to maintain or to restore normal function to diseased or injured tissues. It should be noted here that we are dealing with restoring normal function. For example, in the case of high blood pressure we want to move the blood from the congested splanchnic area to the peripheral parts. An activity such as flexing and extending the feet and the wrists will do this. We are not concerned with strengthening the ankles or the wrists. In the kyphosis case we should be attempting to strengthen the muscles necessary to restore and maintain normal posture. For an above the knee amputation we know that it is necessary to get good strong powerful function in the gluteus maximus. Why? Simply because the semimembranosus and tendinosus and the adductor magnus because of their new insertion, no longer act as knee flexors but as weak extensors. We also know that the last few degrees of extension are extremely important as here is where power is needed. To keep the weight between the tip of the big toe and

the heel in above the knee cases the calf muscles are extremely important. How much study have we been doing along this line as compared with physical therapist Brunnstron?

We need to know our anatomy and our kinesiology. This does not necessarily mean that once having had courses in these subjects we no longer need to study. You all know patella setting but what about the rhomboids, the gluteals and the abdominals? I have often read the prescription "set abdominals" and I am amazed at the number of interpretations of what this means. I fail to see enough exhaling and activities which will cause normal action of the rectus abdominus muscle, the obliques and the transversalis which, as you know, compress the viscera and sets the abdominals. This is physiology of exercise and I raise the question as to just how well advanced we are in this field.

What do we know about reciprocal innervation of antagonistic muscles? What does the "stretch reflex" mean to us? I still see some folks trying to force an elbow into contraction rather than offering slight resistance to flexion and thus having the extensors relax while the flexors flex. How recently have we read Sherrington's experiment with the cat?

What do we really know about exercise beyond the fact that it has something to do with motor activity, that it is useful as a peaceful diversion, that it brings primitive free play into the picture. To many exercise means—well, it means exercise. Oh, yes, something is said about increasing efficiency of the organic processes, but we physical educators are mostly concerned with physical fitness and using exercise for diversional processes. We have been putting around since 1890 with exercise to correct faulty posture and we are not sure enough of our anatomy and our kinesiology to do much in the way of correcting this posture. Look at the postures of our high-school seniors. In some instances we promise correction where the structure involved would never permit correction by exercise (kyphosis angularis). In many instances we fail to realize that one to four hours of posture exercises would not be enough to offset the individual's habitual posture before and after the exercise periods. We have promised a great deal in the way of posture correction but from the thousands of poor posture cases surrounding us we don't seem to show much in the way of results. What can we do in the way of correcting posture by exercise? Frankly, many physical therapists working closely with orthopedic surgeons can give us some good tips on this. On the other hand, we have a peculiar contact with our patients and if we knew more about posture I think we could do as good or even a better job on posture than is now being done by the physical therapist—if we knew more about exercise. I am sure that most physical therapists can tell immediately whether leg raising or sit ups give the best results as far as abdominal exercise is concerned. I frequently see some of our instructors giving leg raising (and double leg raising at that) to a long lean patient who already has a marked lordosis.

The two important phases of therapeutic exercises about which we know little are (1) exercises for the control of certain diseases and their results, and (2) exercises following trauma. This is not necessarily a criticism but it simply means that we have not been steeped in this type of work as has been the physical therapist. Take asthma for example. Do we see in this condition an overextended lower thorax and the need for diaphragmatic breathing to depress the lower thorax? Very seldom do I find very much in the way of a slow continued exhalation being emphasized for these cases. Many of you by now are familiar with the Thoracic Surgery exercises which were used at Baxter and the so-called Goldthwait breathing exercises which were used for the rheumatic fever and other cases of that type. But the point I am raising is whether this material is second nature with you. The physical therapist knows this angle and has been using it for some time. Take poliomyelitis. The patient is placed in a Hubbard tank by the physical therapist and is given exercises for the affected muscles. This is not recreative swimming. How often we see the polio cases in the swimming pool splashing around using the good muscles at the expense of the weaker muscles. Naturally we have been trained to consider a tank of water as something to be used for swimming. What do we know of the use of exercise for cardiac patients? Why give these patients exercise? The doctor asks what signs should we be aware of to determine beginning decompensation in cardiac cases. What is your answer? Do we use all possible precaution to prevent cardiac embarrassment? For example, to make sure the patient exercises SLOWLY, do you have him count "1—slowly, 2—slowly, etc." Fatigue is quickly seen in his voice and especially if he is on the 6, 5, 4 series he will often go from 4 to 5 rather than from 4 to 3, thus giving evidence of fatigue. This is what we must

know and use if we are to take our place as individuals who are using scientific exercise for the control of certain diseases.

Enough has been written to justify exercise during convalescence. Starting with Key's experiment where he confined his conscientious objectors to bed for six weeks we know that inactivity causes:

Blood volume to be reduced 10 to 20%.

Calcium metabolism balance to be upset (hypercalcinuria).

More than twice the usual amount of protein needed to maintain Nitrogen balance.

Marked increase of thiamine and riboflavin in the urinary output.

Excessive excretion of lime salts and demineralization of bones.

Atrophy.

Etc.

With the exception of atrophy just how much do we know of all the other results of inactivity? How much do we know of the underlying pathology in rheumatic fever? We speak of sedimentation rates, hemolytic streptococcus but do we know that hemolytic streptococcus means liberation of hemoglobin and that the HEM is the prefix denoting some relation to blood? These things are important if we are dealing with doctors and if we are attempting to make our work scientific.

It is true that we emphasize the physiologic, psychologic, sociologic and the economic phases of exercise, but we must have more knowledge of the underlying pathology before we can really give the patient what is the best for him. I realize that this is a large order. I have stressed the need for fundamental pathology and a knowledge of the physiologic side and now I am talking about sociologic, economic and psychologic. The fact is our rehabilitation program, or call it psychosomatic medicine, involves so much that frankly to date we have only scratched the surface. You will note that the physical therapist, as I have said, is going into functional activity, she is going one step farther when she attempts to teach specific exercises, to emphasize proper posture. They have also talked about treating the patient as a whole man. We too must be on our toes.

We must recognize the definite contribution which exercise makes to the recovery of the patient and that takes us beyond the uniting of the fracture or the work on the affected part. We must be interested in something beyond the patient's acquiring muscle skill. We must have an over-all point of view. The word Orthogasia which I believe has been used by Dr. Rusk, means conditioning for normal function and adjustment and really defines very nicely the work which we should be doing. We do consider the social outcomes and the psychologic outcomes but we need more basic material on what exercises and how much exercise, based on the underlying pathologic condition. It is here that we bow to physical therapy and it is here that we must do more work, more study, more research, and only then can we hope to go beyond what the physical therapist is doing. After all we are not treating only a diseased condition. We are treating a personality.

Just a few examples of what we can do providing we know our basic material. Take the following: A patient has lost a leg. Some work is done on the remaining stump. But how much work is needed for the normal leg? Well, first the normal leg is going to do double duty. It must not only be normal, it must be better than normal. And the arch of the normal foot is going to have to bear more weight. What are we waiting for? Sell the patient on how he can make the normal leg compensate. Another patient has a BK amputation. Not only must his knee joint be straight and strong, but he must know that a semi-flexed knee joint will not allow the prosthesis to properly carry his weight. He must be shown that there will be uneven pressure and soreness of the knee and the stump with semi-flexion. We must sell him not only exercise but how he can get real use of his prosthesis and thus show him the possibility of his eventual return to the status of an independent citizen. All of this necessitates, however, our keeping up on our anatomy and kinesiology. I hope you all read physical therapist Brunnstron's article in this 1947 May-June Physiotherapy Review. She gives some excellent food for thought. The following is one small example which no doubt is not news to some but I hope will be common information for all. In a bilateral BK the patient may want to get going on his prostheses, but he needs to be sold on the use of crutches and one prosthesis in order that he will get that feeling of security which the one prosthesis and the two crutches offer. How well have we kept up on our contemporary developments in teaching walking? The material of Deaver and Brown should be continually reviewed, and don't overlook Signe Brunnstron's material!

Now as to this question of scientific exercise. What did we have in the way of exercise for the control of certain diseases and following trauma at the beginning of the war? Very little. Colonel Rusk secured some men who had some training in teaching corrective physical education to college students. The Army at first emphasized the care of Groups 2 and 1 in the Convalescent Program—or those who are almost normal. Bulletin TC-87 was the first real contribution in the way of a series of exercises which in a systematic way took in practically all of the body. It wasn't until mid-summer of 1944 that we arrived at anything like an agreement as to just what exercises should be given to bed patients. With the aid of men such as Steinhaus, orthopedic and medical doctors we finally set up a series of bed exercises. But it was almost the end of the war before 8-292 was being distributed. However, this series of exercises was and is scientific and I think we should give this type of exercise more consideration if we are to call ourselves scientific or if we are to have our exercise program an effective one.

These exercises are based upon a number of accepted principles: (1) Atrophy starts with quadriceps, gluteals and posterior deltoids. The leg stretcher is an example of exercise for the quadriceps. The bridge raiser takes care of the gluteals. The raise and push uses the posterior deltoids as well as the trapezius and the rhomboids. (2) Exercise tolerance. In the supine position there is an adequate blood supply to the various parts of the body including the brain and medulla thus there is little tendency to untoward sympathetic responses which might cause nausea. The patient can be given exercise to the point of his tolerance within the limitation of his medical or surgical condition, thus preventing or retarding deterioration while in bed. (3) The entire body is given exercise with suitable alternates to avoid use of the affected area or part. (4) One part of the body is exercised and then allowed to rest while another part is being exercised. (5) The lungs are hyperventilated to prevent steelectasis. (6) Exercises are given to offset the usual faulty bed posture, for example, the shoulder blade squeezer. (7) The abdominal muscles are exercised to preserve tone and to stimulate better digestion and stimulation.

I was not able to sell the Army on a foot exercise, but they did include foot exercises in their remedial exercises. The above is significant of some of the thinking which went on in the preparation of exercises for convalescents. It seems to me that our initial task is to get together and decide on what are the scientific exercises for the type of cases which are now in the veterans hospitals. This should be done while we are together. Once we have the scientific exercises we can then continue to give proper emphasis on the integration of the personality and a more effective social, psychologic and economic adjustment. I'd like to see some sample sets of exercise for pre and post-operative herniorrhaphies, compression fractures of lumbar vertebrae, and a good interesting series of exercises and a game program for 2 or 3 common N.P. types, etc.

It is extremely important that we continue to emphasize the fact that we are dealing with a total personality and not with a defect. What made the amputee so cheerful during the war? Obviously he had visible proof of the fact that he had done his duty and his injury carried with it an honorable sense of security and protection from the further hazards of war. What about the patients in the hospitals today? Are you treating a condition or a personality? If the latter, what kind of personality? Rather than working on a collection of muscles and joints you are working to affect a total integrated personality. Though you are ancillary workers, the modern doctor will not hesitate to explain his case to you—if you show the right interest. Remember the patient is not sure of the outcome of his case. This attitude of uncertainty is inimical to his recovery. What do you know about his case and what help can you give the patient? If he can expect return of function such as outlined in physical demands of daily life, you can start motivating him and thus help him to begin his program of socio-economic orientation. Activities become meaningful when patients understand that these are steps toward orientation and adjustment to ordinary life. This is a phase of your teaching which makes for success in corrective physical education.

In conclusion, it seems desirable again to stress the need for knowing what exercises to use and why these exercises are used. This knowledge may not come from the doctors. It may be, however, that you can in an empirical way set down certain exercise procedures and eventually arrive at certain series of exercises which over and over again will give the desired results. Having established the reliability of your exercises you can then begin to talk of your exercises being

scientific. I also believe that you are licensed to call yourself scientific when you actually regard the patient as a total personality and actually put into practice what we speak of as psychosomatic medicine. Finally, may I say that we are all members of the therapy team and rather than spending the greater part of our time complaining that the physical therapist is encroaching into our field, do such a good job in our field that the physical therapist will realize that the exercise phase of physical medicine is a specialty which can well be handled by the corrective therapy group.



# MINUTES COMMITTEE IN PHYSICAL EDUCATION AND RECREATION IN REHABILITATION

## THERAPEUTIC SECTION, A.A.H.P.E.R.

Present: Dr. Arthur S. Daniels, Dr. Josephine L. Rathbone and Dr. H. Harrison Clarke, Chairman.

The sixth meeting of the Committee on Physical Education and Recreation in Rehabilitation was held in Dr. Rathbone's office, Teachers College, Columbia University, New York City, November 21, 1947. Following is an informal report of this meeting.

### 1. REVIEW OF COMMITTEE WORK TO DATE.

a. Reference was made to the "First Annual Report" of the Committee. This report had been circulated in mimeographed form to the members of the Committee and others.

b. Attention was given to the new graduate program in "Physical Education and Recreation in Rehabilitation" now being conducted at Springfield College. Five graduate students are now enrolled in this program. Reference was made to the graduate program in "Corrective Physical Education" being conducted at Teachers College, Columbia University. A copy of the program is enclosed. Dr. Daniels indicated the training program in this field recently initiated at Ohio State University.

### 2. REPORT OF INTERIM FACTS.

a. American Congress of Physical Medicine. At its annual convention in September, the Congress took active interest in "physical reconditioning" as it applies to hospital treatment.

(1) "... it was the opinion of the Congress of Physical Medicine, the Society of Physical Medicine and the Educational Conference of the Congress of Physical Medicine that the people who are to do reconditioning and rehabilitation as a part of the overall field of rehabilitation should have basic training as physical therapy technicians." (Letter from Dr. Earl C. Elkins, October 14, 1947.) The following motion was passed by the Educational Conference of the Congress: "... The motion is that those who want to become physical reconditioners in rehabilitation in the medical field, particularly hospitals, should be qualified physical therapists." The motion was carried unanimously. The consultants on Education to the Council on Physical Medicine of the American Medical Association passed a similar resolution to be sent to the Council on Education and Hospitals of the A.M.A.

(2) Dr. Clarke and Dr. Elkins prepared a paper, "Evaluation of Training of Physical Educationists for Reconditioning and Rehabilitation," which was presented before the Congress. This paper will be published soon in the Archives of Physical Medicine.

b. American Association for Health, Physical Education and Recreation.

Reference was made to correspondence received from Ellen Kelly, Chairman of the Therapeutic Section, Ralph Piper, Chairman of the Professional Education Section and Nancy Shley Duggan, Chairman of the Professional Education Committee of the Association.

(1) Dr. Kelly requested the Committee to prepare recommendations for standards of preparation of personnel, both graduate and undergraduate, engaged in corrective physical education in schools and colleges.

(2) Mr. Piper stated that the program for the Professional Education Section would concentrate on the need for professional training standards and would cooperate with the Therapeutic Section and our Committee will appear on this program at the Kansas City convention.

(3) As Chairman of the National Professional Education Committee, Miss Duggan expressed a desire to collaborate closely with our Committee in the preparation of minimum standards for the training of physical educational personnel.

### 3. COMMITTEE EMPHASIS.

Inasmuch as Miss Worthington, Dr. Boynton, and Dr. Elkins were unable to attend the committee meeting, discussion was concentrated on the educational phases of physical reconditioning and its application to school and college physical education. It was pointed out by Dr. Daniels that there are approximately 29,000 schools in the United States and that the challenge for physical educators to aid



the handicapped in this population was tremendous. The great task here is to teach the handicapped to live most with what they have to live with. In this regard, therefore, the problem is educational rather than medical.

#### 4. TERMINOLOGY.

The Committee felt that the terminology presently in use to designate the field of "physical reconditioning" was unfortunate. It was recognized, however, that this was a perennial problem, as the field has been identified for years under such titles as: corrective physical education, individual physical education, corrective physical rehabilitation, and the like. None of these have been satisfactory.

Action: In an effort to seek an acceptable term to designate this specialized function within the scope of physical education, the Committee voted to poll a selected list of physical educators in order to obtain expert opinion on appropriate terminology.

#### 5. NATURE AND SCOPE OF SCHOOL CORRECTIVE PHYSICAL EDUCATION.

Considerable committee discussion was centered about the nature and scope of "corrective physical education" in schools and colleges. It was considered a vital problem largely because of its great need and of its extreme neglect in educational institutions throughout the country. Committee considerations were as following:

a. Present concept in the schools is too narrow. When it does exist, it is frequently confined to posture work. In light of present knowledge, the "corrective" program is capable of great expansion.

b. In school physical education as generally practiced, the physically handicapped are sent to "study halls." Much can be done for these unfortunates in helping them to live most with what they have.

c. The concept of educating the whole child needs stressing. With the handicapped, for example, the physical educator may be teaching a swimming skill. However, his greatest contribution may be the development of confidence in the student and a wholesome attitude toward life.

d. The educational "corrective" program does not involve the practice of medicine.

e. Emphasis also may be placed appropriately upon pride in one's own appearance and in a feeling of general fitness through well selected and vigorous forms of exercise.

Action: Committee action in regard to studying the nature and scope of school corrective physical education took the following directions:

a. Dr. Daniels was requested to prepare an article for submission to the Journal of Health and Physical Education setting forth his views on the nature and scope of school corrective physical education.

b. Dr. Daniels agreed to assume major responsibility for constructing a Platform setting forth the Committee's views on this problem. (This platform may include proposals for securing greater acceptance of corrective physical education in the schools and colleges of the country.) The following proposals were made to guide Dr. Daniels in the preparation of this Platform:

(1) First draft by Daniels.

(2) Send to committee members for suggestions.

(3) Revise in accordance with committee proposals.

(4) Present to chairmen of District Therapeutic Sections for presentation to the sections at their annual conventions next spring.

(5) Present as part of Second Annual Committee Report to the National Therapeutic Section for approval.

c. Proposals for research pertaining to the scope and nature of corrective physical education work in colleges and universities were made as follows:

(1) Study of special schools (Daniels).

(2) Federal participation and aid (Clarke).

(3) Need in larger cities: their programs and problems.

(4) Interest and collaboration with American School Health Association.

#### 6. STANDARDS FOR TRAINING OF PHYSICAL EDUCATION PERSONNEL.

The need for immediate action to prepare specific recommendations for the training of personnel for corrective physical education in educational institutions was considered particularly urgent in view of Dr. Kelly's request for spe-

cific recommendations at the Kansas City convention of the A.A.H.P.E.R. The following procedures were approved for accomplishing this mission:

- a. Prepare preliminary statement (Drs. Clarke and Rathbone).
- b. Revise statement through committee action.
- c. Send to Dr. Kelly for review and suggestions.
- d. Request examination of statement by selected leaders in the field.

#### 7. CLEARING HOUSE.

The Committee felt that a Clearing House for materials and research in the area of the committee's interest should be established. Dr. Rathbone agreed to undertake this task.

#### 8. COMMITTEE MEMBERSHIP.

A letter from Charles D. Giauque was read explaining his inability to attend meetings of the committee and offering to retire from its membership. The Committee felt that Mr. Giauque's membership should be continued.

It was considered advisable to request the Chairman of the Therapeutic Committee to appoint Dr. Cecil W. Morgan to committee membership.

The meeting was adjourned.

Respectfully submitted,

H. HARRISON CLARKE,

Chairman.

## HEAVY RESISTANCE EXERCISE

A STUDY OF VARIOUS PROCEDURES DESIGNED TO INCREASE STRENGTH  
HARRIETT E. GILLETTE, M. D., and G. CLINTON KNOWLTON, Ph. D.

With the Technical Assistance of Allen McDonough

Development of maximum muscle power in the shortest possible time is a subject of interest to both the medical profession and the lay public. Until DeLorme<sup>1</sup> published his work in 1945, the literature was noteworthy for the paucity of systematic studies of training programs. At the present time, however, to the authors' knowledge, there has been no attempt made to evaluate different strength-building regimes; what, if any, advantage one form of resistive exercise had over another; or whether endurance-building can be substituted for strength-building, or is interchangeable with it.

Hellebrandt, et. al.<sup>2</sup> reported a 62% increase in strength after four weeks of the DeLorme routine; there was also an increase in strength of the contralateral unexercised extremity, though this was not as marked.

Hoag<sup>3</sup> states that this same routine quickly develops power; the patient is then ready for endurance building.

Maison and Kotalik<sup>4</sup> worked a group of subjects to fatigue; one-half of this group, after a rest period, maintained the highest state of work for an additional 10 minutes. It was found that the endurance gain was higher in the doubly exercised group, and that with discontinuance of work, endurance dropped 50%, though the absolute muscle power remained the same for an indefinite time.

A post-contraction reflex was demonstrated and measured by Allen<sup>5</sup> after varying amounts of tension, time intervals, and rest periods. The greatest response was shown after maximum tension, at three-minute intervals.

The fusion frequency of flicker was used as an index of the state of the central nervous system after varying degrees of exercise by Simonson, et al.<sup>6</sup> Light exertion showed no effect; moderate, increased; and fatiguing, decreased, flicker fusion frequency.

Krause<sup>7</sup> found brain potential voltages increased from 15 to 25 m.v. during a light exercise warm-up period.

With these points in mind, a group of 22 chronic custodial patients at Veterans Hospital "48", Atlanta, Ga., was given different forms of quadriceps resistance exercise for one month. The patients' handicaps varied markedly in severity, but all showed atrophy of long disuse.

Exercises were given daily, Monday through Friday. Monday was designated "test day," and at this time a single isometric pull was measured. This was accomplished by passing a belt across the anterior aspect of the ankle, with the patient in the sitting position. The belt, through a steel tape, was attached to a torsion rod on which was a mirror, reflecting a beam of light onto a graded screen. In addition to the isometric contraction, the DeLorme test of 10 Repetition Maximum (10 R.M.) was also determined weekly. This represented the maximum amount of weight which could be lifted through the complete range ten times. The voluntary arc of motion was measured at the beginning and end of the experiment.

Four regimes of exercise were set up, as follows:

- A. 5 bouts of 10 extensions each, progressing from 1/5 to 5/5 of 10 R.M.
- B. 5 bouts of 10 extensions each, progressing from 5/5 to 1/5 of 10 R.M.
- C. 100 extensions with 1/5 of 10 R.M.
- D. 2/5 of 10 R.M. held in extension to fatigue 5 times.
- E. Control. No exercise except weekly testing.

Because of the small number of subjects and the five variables, the various regimes were pitted against each other in paired combinations, and the final results analyzed as paired samples. On the basis of performance evaluation by the maximum weight that can be lifted ten times, the following conclusions are valid:

Group A made significant improvement during the first three weeks; no change during the fourth week.

Group B made significant improvement for the four weeks; a plateau level was not attained.

Group C made significant improvement during the first two weeks, none during the third and fourth.

Group D made significant improvement for the four weeks; a plateau level was not attained.

Group E made significant improvement during the first two weeks, none during the last two.

There are no statistically significant differences between the total improvements shown by any of the five groups. That there is some element of crossed learning is demonstrated by the improvement in Group E. There was a significant increase in range throughout.

#### COMMENT

This is an exceptional group of patients in that their handicaps were moderately severe, they had no regular physical therapy for a long time, and their motivation was nil. It must be recognized that any form of therapy in such a group is bound to produce some degree of improvement, and that the psychological factors of diversion, and the enthusiasm of the operator, will produce a concomitant effect in the performance of the patient.

From purely clinical observation, those patients who had the greatest motivation demonstrated the greatest improvement. Coordination was improved in all groups equally, and was not limited to the bodily segment exercised. Morale of the group as a whole was noticeably improved.

In attempting to improve muscular performance it is important that coordination be maintained or obtained along with increased muscular strength. While no purely objective measurements of coordination were made, it seemed that light resistance exercise enhanced coordination.

#### CONCLUSIONS

These results suggest that any routine which demands the utmost expenditure of energy of which the muscle is capable, will develop the unused sources of power of that muscle, provided the program is carried out in a regular, systematic manner, at daily intervals.

It is concluded that the supervised systematic exercise is a requisite in every rehabilitation program, the type prescribed to be governed by the patient's interest, handicap, and potentialities.

DEPARTMENT OF PHYSICAL MEDICINE,  
Emory University,  
Atlanta, Ga.

The authors wish to express thier thanks to the Elgin Apparatus Co., Elgin, Ill., for the apparatus used in this study.

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## INDEPENDENCE HALL

JACK E. JONES

Executive Assistant Physical Medicine Rehabilitation Division  
VA Branch Office, Atlanta 3, Georgia

Motivation of the severely disabled to equip themselves to meet activities essential to their daily living has been a primary job that has naturally fallen to the lot of corrective therapists.

In working with the paraplegia, hemiplegia, amputee or other easily recognized disabilities the therapist many times is unable to have the patient visualize their real need to "move from wheel chair to floor," "walk sideways," "secure buttons on button board," and accomplish many other seemingly impossible gymnastics to appease the enthusiasm of the various treatments devised by the corrective therapists.

Patients in one of the larger paraplegia centers at Kennedy VA hospital, Memphis, Tennessee, began to resist so many demanding attentions of therapists and in many instances made excuses and assumed a "stay away attitude" to learning their activities essential in daily living.

To combat the situation the hospital staff at Kennedy championed by members of the corrective therapy staff has developed a unique department that has stimulated interest in self care beyond their greatest dreams.

A building ninety feet by fifty feet known to all patients as "Independence Hall" has been completely remodeled and equipped where patients can practice the activities of daily living which they will need to fit them into a normal world of competition, business, and hurrying people. A committee of paraplegia patients assisted the staff in determining the practice obstacles and furnishings they would need. Many of the suggestions resulted from their visits home as they realized inadequacies in their own self care.

Every day new items are added to the armamentarium of "Independence Hall." Following is a description of this project where many severely disabled today with stout hearts and firm faith are slowly writing their own "Declaration of Independence" in their own "Independence Hall" quite removed from Philadelphia.

First, there is an exercise mat twenty-four feet by twenty-four feet elevated from the floor so patients may move from wheel chair to mat. Here they are given conditioning exercises to build up the muscles of the upper extremities. A series of stall bars, wall weights, and mat exercises are used. The patients easily understand the stronger these muscles the easier will be crutch walking and wheel chair mobility. There are life-size models of house steps, bus steps, and models of street curbs forty-two feet apart with a traffic light to time the man trying to cross before the light changes. Many patients reported difficulty moving about in the home community because of varying surface areas. Highly polished floors, carpet, sand, gravel, and linoleum areas were constructed in "Independence Hall" and each man must learn to navigate these various surface obstacles.

Parallel bars of various heights and ample mirrors for self judgment stimulate early practice toward development of crutch walking gait.

A unique feature of "Independence Hall" is a three-room apartment containing a living room, bedroom, and bathroom. By practicing with low over-stuffed chairs, a divan, regular bed, and various bathroom facilities, patients can find out how well they are going to be able to handle themselves in home situations and begin to see very clearly the advantages of "walking sideways," and other activities set forth in VA Pamphlet 10-10 "What's My Score." This three-room apartment has nine doors equipped with every type hinge, lock, swing, and knob, including the standing revolving door to hotel lobbies.

Another section houses theater seats, soda fountain bar, telephone booth, restaurant booths, bar stools, and various individual obstacles requested by special patients for their own particular problems.

On a platform outside one door covered by a shed an automobile body is placed on blocks available to practice getting in and out. Later, they may use the fully equipped automobile with hand controls for practice to obtain driver's license.

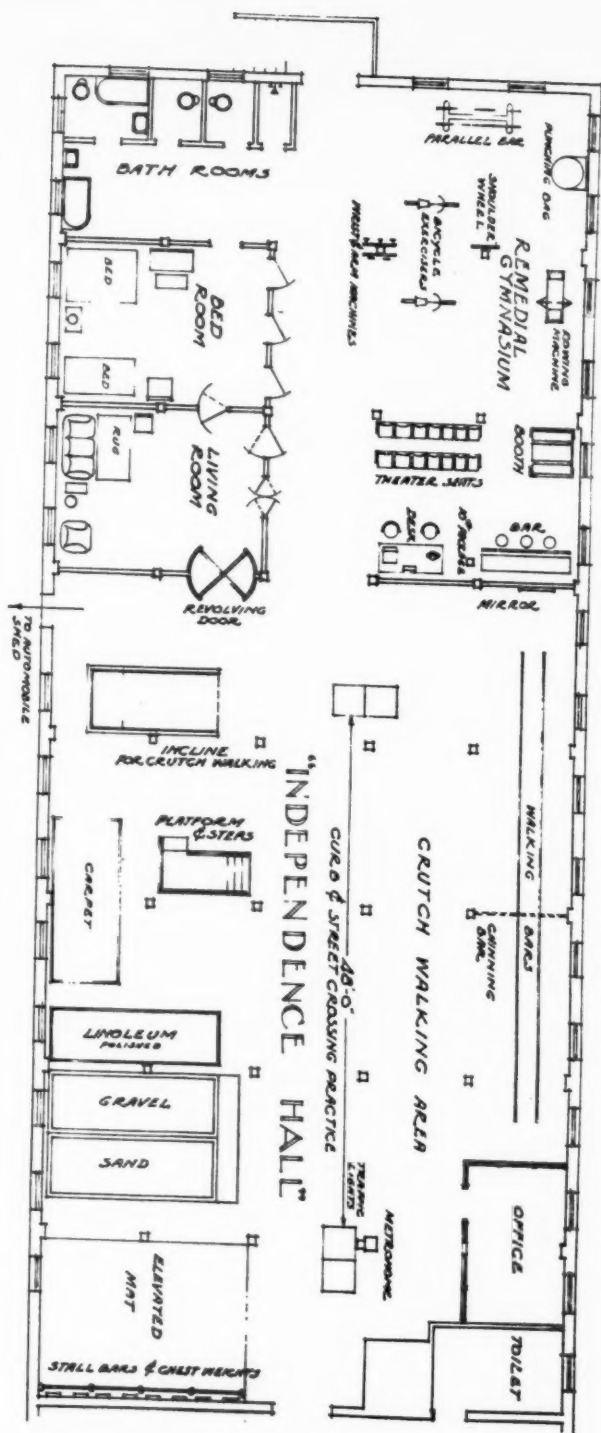
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A well equipped remedial gymnasium similar to one that a patient should develop in his own home completes the present facilities of "Independence Hall."

The various equipment described above has been used in many places but the combination of "home-like problems" assembled in "Independence Hall" meeting the practical self care needs has stimulated activities in this phase of corrective therapy from individual assistive treatments by the therapist to moderator among enthusiastic patients working toward their goal of independence.

The writer realizes that facilities described above cannot be duplicated in every hospital but it is hoped that the attached drawing will enable you to develop your own modification of an "Independence Hall."





## NOTES OF INTEREST

Send your membership renewals to Carl Purcell, 2212 S. 9th Ave., Maywood, Illinois. From Section VII of the constitution and by-laws which were amended and approved by the convention body in Chicago last June, the following information is quoted: "Annual dues for active members shall be five dollars, associate members five dollars. The annual dues shall begin the first of January each year. The publication shall be sent only to members whose dues have been paid." The Executive Committee feels confident of your continuing interest in APMR and is furnishing copies of this journal as a reminder in case you are late in renewal.

Oreon Timm, M. D., Clinical Director, Veterans Hospital, Danville, Illinois.

The advisory Board of APMR is composed of:

Howard Rusk, M. D., Professor and Chairman of the Department of Rehabilitation and Physical Medicine, New York University.

Donald A. Covalt, M. D., Professor, Rehabilitation, New York University Medical School.

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H. Harrison Clarke, Ph. D., Director of Graduate Study, Springfield College, Springfield, Massachusetts.

Josephine L. Rathbone, Ph. D., Professor, Physical Education, Columbia University, New York City, New York.

Kjell J. Peterson, President, Metropolitan Life Insurance Athletic Association, New York City, New York.

Louis Newman, M. D., Chief, Physical Medicine Rehabilitation Service, VA Hospital, Hines, Illinois.

C. F. Behrens (MC) Capt. U. S. Navy, Chief, Atomic Defense Division.

The following Representative Assembly of this association was elected by area vote in each section:

Veterans Administration Branch 1—

Mr. Everett M. Sanders,  
Cushing General Hospital,  
Framingham, Massachusetts.  
Mr. Frank Deyoe, Jr.,  
Cushing General Hospital,  
Framingham, Massachusetts.

VA Branch 2—

Mr. Louis Mantavano,  
VA Hospital,  
Manhattan Beach, L. I., New York.  
Mr. Arthur Tauber,  
VA Hospital,  
Bronx, New York.

VA Branch 3—

Mr. Chris Kopf,  
VA Hospital,  
Lyons, New Jersey.  
Mr. John Logan,  
VA Hospital,  
Coatesville, Pennsylvania.

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Mr. John Belcher,  
VA Hospital,  
Richmond, Virginia.  
Mr. Leon Edman,  
VA Hospital,  
Richmond, Virginia.

VA Branch 5—

Mr. P. R. Davis,  
VA Hospital,  
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Mr. Earl W. Mason,  
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VA Branch 8—

Mr. E. E. Speer, Jr.,  
VA Branch Office 8,  
St. Paul, Minnesota.  
Mr. Chester Nelson,  
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VA Branch 9—

Mr. Tom J. Zwierlein,  
VA Hospital,  
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Mr. George Allen,  
VA Hospital,  
McKinney, Texas.

VA Branch 11—

Mr. George J. Colasuonno,  
VA Hospital,  
American Lake, Washington.

VA Branch 12—

Mr. Dwight T. Behan,  
VA Hospital,  
West Los Angeles, California.  
Mr. Fred O. Banion,  
VA Hospital,  
Palo Alto, California.

VA Branch 13—

Mr. Henry Amicarella,  
VA Hospital,  
Fort Lyons, Colorado.  
Mr. Edward H. Richardson,  
VA Hospital,  
Sheridan, Wyoming.

Committees represent one of the most important channels through which continuing service is rendered by the association to the individual and to the profession. Committees are appointed by the president to solve immediate problems. These committees dissolve with the expiration of the president's office but may be reappointed by incoming officer. In spite of handicaps associated with committee work, many of the committees are making outstanding contributions. Some very significant projects are nearing completion. Members of the association are urged to correspond with the particular chairman involved. Committee reports will be rendered at the association convention, St. Louis, Mo., June 3-5.

Professional Standards—Mr. Carl Purcell, 2212 S. 9th Ave., Maywood, Ill.

Membership Committee—Roland Schwartz, VA Branch Office 7, Chicago, Ill.

Research and Education—Mr. Paul Roland, VA Hospital, Danville, Ill.

Constitution and By-Laws—Mr. Austin Miller, VA Hospital, Chillicothe, Ohio.

Insignia—Mr. Sam Boruchov, 3715 81st Street, Jackson Heights, N. Y.

Committee on Preamble, Aims, and Constitution—Mr. John Logan, VA Hospital, Coatesville, Pennsylvania, and Mr. Leo Berner, VA Hospital, Bronx, N. Y.

The second scientific and clinical session of the Association for Physical and Mental Rehabilitation will be held June 3-5 at the DeSoto Hotel, St. Louis, Mo. Mr. Hugh Vickerstaff, Executive Assistant, Physical Medicine Rehabilitation Service, Branch Office 9, will be the area chairman, with Mr. Tom Zwierlein, VA Hospital, Jefferson Barracks, Missouri, assisting. Approximately 200 preliminary reservations have been made at the DeSoto Hotel in downtown St. Louis. Adequate demonstration and lecture space has been reserved in the same hotel. Already reservations are being received by the convention chairman in St. Louis. Requests for rooms will be dated according to date of receipt and rooms will be assigned in that order. To avoid any unnecessary delay and disappointment, you are urged to: (1) Clear all reservations through the convention manager, Tom Zwierlein, (2) Double up with friends whenever possible. Single rooms are scarce, (3) Act now and make your reservation early, and (4) Be patient for a reply.

The Surgeon General, U. S. Army, announces an eight weeks course in physical reconditioning to be given at the Medical Field Service School, Fort Sam Houston, Texas, beginning April 26, 1948. The purpose of the course is to qualify officers to activate, organize, and administer program of physical reconditioning.

Reserve and National Guard officers formerly on active duty with the Army Medical Department, and who are now engaged in physical education may return to active duty for sixty (60) days in order to take this course, upon application.

The Surgeon General further states that those Reserve officers who wish to compete for appointment in the Regular Army should avail themselves of this opportunity.

Applications for this course must be submitted through appropriate Army headquarters to reach the Chief, Personnel Division, Office of The Surgeon General, not later than March 15, 1948.

Copies of the APMR constitution and by-laws are being forwarded to each member this month.

Born to Mr. and Mrs. Roland Schwartz, Executive Officer Branch 7, Dec. 29, a girl. Congratulations.

